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Technical Discussion Paper

Geographic Footprints in the Catalog

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1 Introduction

This paper address the question "how can I know what data *The National Map* contains for a particular State?"

A more general and precise problem statement is:

> **Given an area of interest with a known but arbitrary geographic extent, find every data layer of *The National Map* that satisfies one or more of these conditions:**
>
> - **Has exactly the same extent as the area of interest**
> - **Is completely contained within the area of interest**
> - **Is nearly contained within or closely associated with the area of interest.**

This problem is not as simple as it might first appear, primarily because of the fuzzy requirements of the third bullet: "…**nearly** contained…or **closely** associated…" *The National Map* aspires to be extremely general, using data from large numbers of external sources. Source data will not always associate cleanly with any pre-defined boundary set. Consider, for example, the geographic extent of a series of satellite images of a hurricane. Such images may cover a large, but completely arbitrary, geographic extent.

A more common example that illustrates the problem is a National Forest that crosses State boundaries. The Forest boundary might be one footprint, but might be composed of more than one polygon. It is not contained within any State or County, nor is any State or County contained within the Forest boundary or its minimum bounding rectangle (MBR). In fact, there is **no** predictable relationship between a Federal boundary and any local political boundary.

The Forest **is** contained within the National boundary, but this is not especially helpful. *The National Map* contains many nation-wide datasets, and any extent query that is not constrained more tightly than the entire nation will return so many records that the result will usually not be useful for evaluating smaller areas. For this reason, a fourth bullet such as "…or associated with a larger extent that completely covers…" is not included in the above problem statement.

2 The EXTENTS Table in the Catalog Data Model

One of the tables in the Catalog database is named EXTENTS:

```
SQL> desc extents
 Name                           Null?    Type
 ------------------------------ -------- ----
 ID                             NOT NULL NUMBER(8)
 NAME                           NOT NULL VARCHAR2(240)
 TYPE                                    VARCHAR2(20)
 FOOTPRINTID                             NUMBER
 GEOMETRY                                MDSYS.SDO_GEOMETRY
 AREARATIO                               NUMBER
```

There are two types of extents: footprints and minimum bounding rectangles (MBR). A footprint is an arbitrary geographic polygon. It is usually a political boundary (National, State,

County, Park, National Forest…), but this is not a requirement. Every data layer (element)[1] registered in the Catalog is associated with exactly one footprint, but one footprint can be associated with any number of layers.

Each footprint is in turn associated with exactly one MBR. Footprints and MBRs are both "extents" and are therefore contained within one database table. The **type** field distinguishes between them. MBRs are mostly for computational convenience, and are normally of interest only to programmers. MBRs are therefore ignored in this paper.

The **geometry** field has an unusual data type: mdsys.sdo_geometry. This is the data type of Oracle spatial objects, used to store geographic coordinates in Oracle fields. Unfortunately, this makes it moderately difficult to extract the spatial objects from the database in a form friendly to display in a GIS. The communication mechanisms between ESRI products and Oracle products, for example, are not yet very mature.

Because every layer is associated with exactly one footprint, the problem statement at the beginning of this paper reduces to creating a complete list of footprint IDs in the area of interest. If all such footprints can be found, then it is a simple matter to query the database for all layers that are associated with these footprints.

3 Simple Queries of Footprints and Layers

A list of footprint names and IDs can be obtained with a simple query of the EXTENTS table:

```
SQL> select id, name, arearatio
  2  from extents
  3  where type='FOOTPRINT'
  4  and id in (select distinct footprintid from elements)
  5  order by arearatio desc;

     ID NAME                                AREARATIO
------- ---------------------------------- -----------
   1740 World                             1.30592307
   1866 West Territorial Islands           .26231313
   1936 Africa                             .15824765
   1952 South America                      .09609366
   1864 East Territorial Islands           .08673089
   1403 United States & Territories        .08475847
    100 United States, lower 48            .05600773
     51 Alaska                             .02755537
   2041 USFS                               .01143259
   1748 Mexico                             .01074281
     40 Texas                              .00443694
   1934 Afghanistan                        .00386214
     24 California                         .00359852
      2 Montana                            .00278606
     11 Oregon                             .00201293
     48 Florida                            .00195229
     41 New Mexico                         .00190967
[etc…  489 rows total]
```

[1] "Layer" is an overloaded GIS term. It has precise, but different, meanings in ESRI products and in the OGC Web Map Services specification. The records in the Catalog table ELEMENTS do not correspond exactly to OGC layers [an element can be only part of a layer, for example], which is the reason the table is not named LAYER. This paper ignores this nuance and uses the term "layer" to refer to the records in the ELEMENTS table.

The **arearatio** field is defined as the surface area of the footprint divided by the total surface area of the northwest quadrant of the globe (0 to 90 degree north latitude, 0 to -180 degrees west longitude).

Footprints of multiple states or regions can be necessary for several reasons. States sometimes cooperate on GIS projects that produce multi-State layers. Images of natural phenomena like hurricanes don't match State boundaries, yet cannot be appropriately associated with national or world extents.

Most layers that would be considered national datasets for the U.S. are associated with the "United States and Territories" or the "United State, lower 48" footprints. So a list of all national-coverage layers can be made with a query such as:

```
SQL> select id, title
  2  from elements
  3  where footprintid in (1403,100)
  4  and status='PUBLIC';

     ID TITLE
------- ----------------------------------------
   1924 USGS Current Greenness (NDVI)
   2019 Waterbodies 7.5M (National Atlas)
   2021 Streams 2M (National Atlas)
   9507 GTOPO60 Grayscale Shaded Relief
   9518 US Interstate Labels (USGS)
  10282 US Major Roads (National Atlas)
   8007 1/3 ArcSecond NED, CONUS
   2433 DOQ Production Index (DOD)
   7746 Flood Data Availability
   7747 Q3 Flood Hazards
    838 State and Province Boundaries (USGS)
   2440 Facilities (DOD)
   2267 Catalog Partner Names
   2020 Streams 7.5M (National Atlas)
   2839 0-24k Coverage
   3371 Landform Features
   3369 Structural Features
   3497 Available Wetland Data (USFWS)
   3498 Wetland Polygons (USFWS)
   3370 Transportation Features
   3372 Cultural Features
   3373 Administrative Features
[etc… 205 rows total]
```

4 Using GIS Coverages of Footprints

For finding datasets that cover the entire country, variations of the queries in section 3 will usually be adequate. But for smaller areas, this technique will usually not work. If the question is "what layers cover a particular State?", the questioner almost certainly does **not** mean "what layers *exactly* cover the State?" Rather, they probably mean "what layers touch or cover the State, but are not national-coverage layers?"

Using the Feature Manipulation Engine (FME) software[2], the CST periodically creates a Shapefile of most of the footprints in the Catalog. This GIS dataset can be retrieved from http://thor-f5.er.usgs.gov/nmcatalog/footprint.zip. It can be used by anyone to assist with examining footprint-layer relationships and problems.

The Shapefile footprints.shp is a polygon coverage. When displayed in ArcGIS, with the background changed to "hollow," it looks like Figure 1.

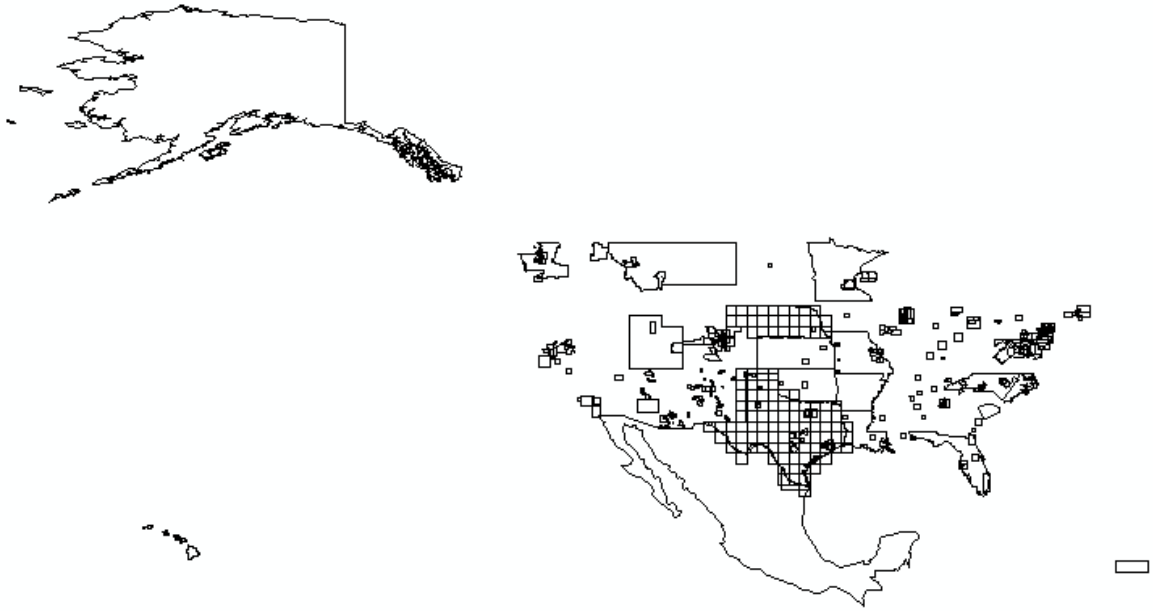

Figure 1. footprints.shp as displayed in ArcMap. Only non-national footprints that are actually used (that is, associated with some non-national WMS layer) are shown. Current as of November 2004.

The contents of this coverage are equivalent to the output of this query:

```
select  id, name, type, footprintid, geometry, arearatio
from    extents
where   type='FOOTPRINT'
  and id in (  -- only footprints that are used
      select distinct footprintid
   from elements
   )
and id not in (1740,1866,1936,1952,1864,1403,100,1748);
```

The coverage excludes all MBRs, and excludes footprints with world or national extent. The CST can make similar coverages that include these extents, or that include all extents, but the footprints.shp coverage is more useful most of the time.

[2] Safe Software, Inc., http://www.safe.com/

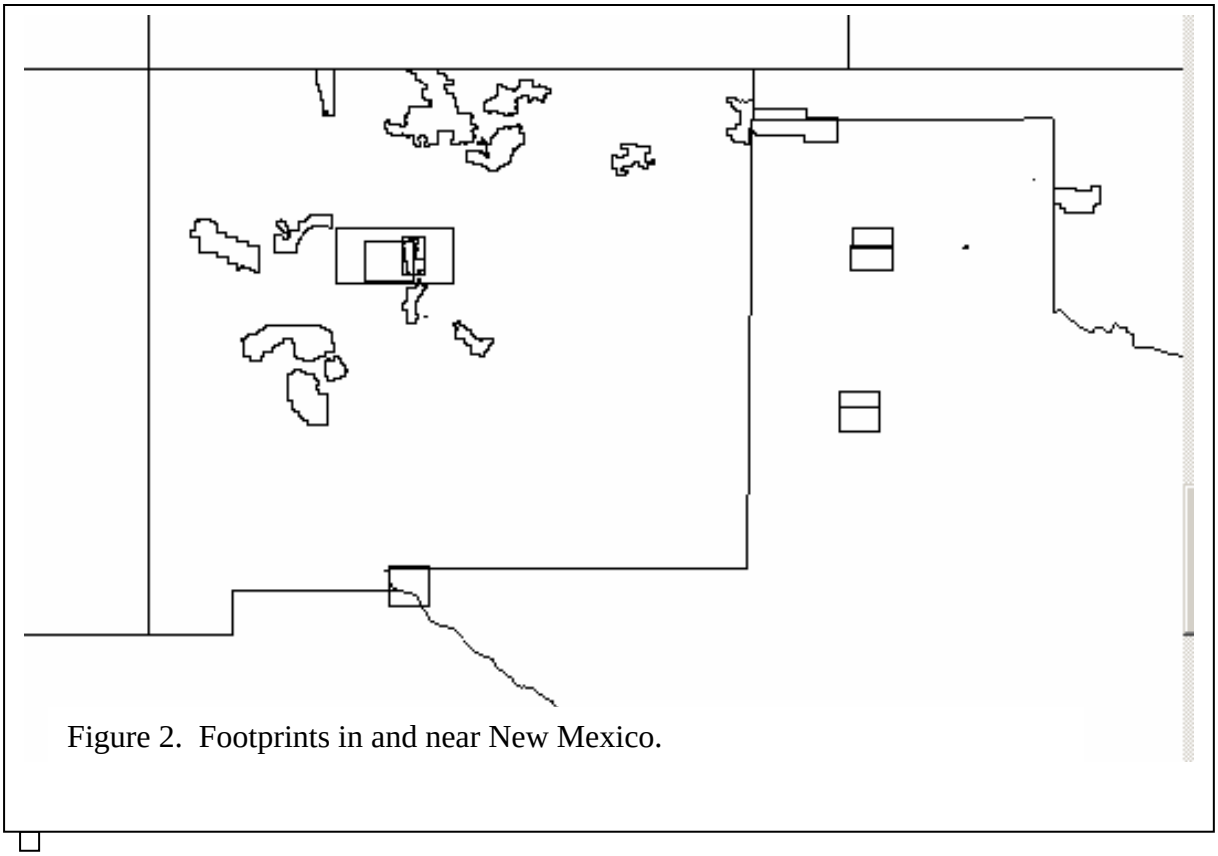

Figure 2. Footprints in and near New Mexico.

As an example of how this dataset might be used, we will find all the footprints that are relevant to the State of New Mexico. Figure 2 shows the footprint polygons in the New Mexico vicinity.

It is not possible to know, from this display alone, what all these footprints are. They include the States, several urban areas of the 133 Cities project, a National Forest, and a Ranger District.

Using standard ArcMap selection options,[3] interactively select footprints that are geographically related to New Mexico. Figure 3 shows the result.[4]

The polygons with irregular shapes scattered across central and northern New Mexico and northern Texas are parts of the boundaries for several National Forests. The Forest Service owns a WMS that serves several layers of roads and trails for selected areas, and these are the footprints of those layers. These polygons correspond to the boundaries of National Forests, but they do not all belong to the same Forest, and it cannot even be assumed that any of the Forests represented have their complete boundary shown. These polygons together make a single footprint in the Catalog, because the data being served for them is in a single WMS layer. This is the reason that some polygons outside New Mexico are highlighted by this selection[5].

[3] This example uses ArcMap, but essentially the same things can be done with ArcView and probably just about any other commercial GIS. This paper is not a tutorial on using ArcMap, so many steps for obtaining the results are not documented. Readers trying to duplicate the results shown in this paper should pay particular attention to the **Interactive selection methods** and **Options** on the menu bar **Selections** pull-down menu.

[4] Figures 3 and 4 are more coherent if displayed or printed in color.

[5] The National Map contains a layer of boundaries for all National Forests, but this is a boundary layer, not a footprint. Further, it is a national coverage and is therefore not associated with any of the footprints in the footprints.shp file.

Figure 3. Footprints in and near New Mexico, selected in ArcMap

View the attribute table for the footprints layer (the ArcMap layer, not WMS layer) by:

- right-click on **footprints** in the contents window
- select **Open attribute table** from the drop-down menu.
- Hit the **Selected** button at the bottom of the table to show only those rows that have been selected.

The result is shown in Figure 4.

The data in Figure 4 are very close to the solution of the problem statement presented at the beginning of this document. There are five footprints that are closely associated with New Mexico. (Again, this is in addition to all the national coverages that cover every footprint within the national boundary.)

All that remains is to list the WMS layers associated with these footprints. Since each layer is associated with exactly one footprint, this is easy to do, given the footprint IDs from the attribute table shown in Figure 4.

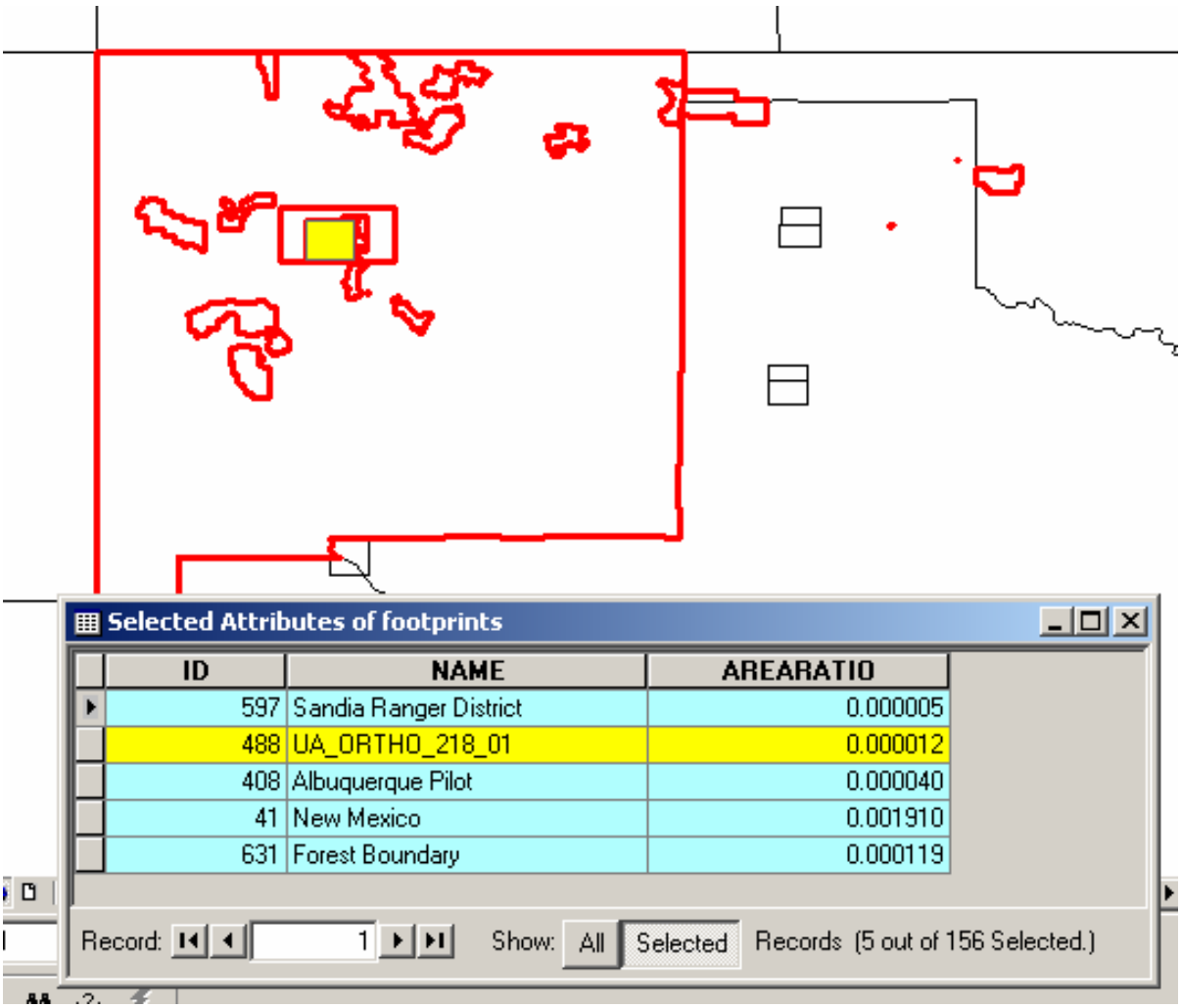

Figure 4. Attributes of the selected footprints, with urban area footprint highlighted.

```
SQL> select id, status, title
  2  from elements
  3  where footprintid in (597,488,408,41,631)
  4  order by status, id;

   ID STATUS        TITLE
----- ------------ ------------------------------------------------
 1036 NOT AVAILABLE Roads  (Albuquerque Pilot)
 1037 NOT AVAILABLE Road Names (Albuquerque Pilot)
 1021 NOT USED      Shaded Relief (Albuquerque Pilot)
 1024 NOT USED      Lakes (Albuquerque Pilot)
 1025 NOT USED      Rivers (Albuquerque Pilot)
 1026 NOT USED      Major Roads (Albuquerque Pilot)
 1027 NOT USED      Streams (Albuquerque Pilot)
```

```
 1028 NOT USED      Lakes (Albuquerque Pilot)
 1029 NOT USED      Water Bodies (Albuquerque Pilot)
 1030 NOT USED      Roads (Albuquerque Pilot)
 1031 NOT USED      Roads (Albuquerque Pilot)
 1038 NOT USED      Regional Centers (Albuquerque Pilot)
 1039 NOT USED      Cities (Albuquerque Pilot)
 1040 NOT USED      Populated Places (Albuquerque Pilot)
 1022 PUBLIC        Shaded Relief - 10m (Albuquerque Pilot)
 1023 PUBLIC        Land Cover  (Albuquerque Pilot)
 1032 PUBLIC        Intermediate Contours  (Albuquerque Pilot)
 1033 PUBLIC        Index Contours  (Albuquerque Pilot)
 1034 PUBLIC        Railroad Structures  (Albuquerque Pilot)
 1035 PUBLIC        Misc Transportation - Facilities (polys - Albuquerque Pilot)
 1382 PUBLIC        Spot Elevations  (Albuquerque Pilot)
 1383 PUBLIC        Misc Transportation - Facilities (points - Albuquerque Pilot)
 1696 PUBLIC        Cibola NF-Sandia Ranger District Boundaries
 1697 PUBLIC        Sandia Ranger District Roads
 1698 PUBLIC        Sandia Ranger District Trails
 1699 PUBLIC        Sandia Ranger District Point Features
 2151 PUBLIC        Sandia Ranger District Non Forest Land
 2166 PUBLIC        Bernalillo County Roads (Albuquerque Pilot)
 2167 PUBLIC        DOQ (Albuquerque Pilot)
 2168 PUBLIC        Interstates (Albuquerque Pilot)
 2169 PUBLIC        Local Roads  (Albuquerque Pilot)
 2170 PUBLIC        Sandoval County Roads (Albuquerque Pilot)
 2171 PUBLIC        State Routes (Albuquerque Pilot)
 2172 PUBLIC        US Routes (Albuquerque Pilot)
 2387 PUBLIC        FS Private land owners (Region 3)
 2388 PUBLIC        FS Special Management (Region 3)
 2389 PUBLIC        FS boundary (Region 3)
 2390 PUBLIC        FS roads (Region 3)
 2391 PUBLIC        FS trail (Region 3)
 2392 PUBLIC        FS point features (Region 3)
 3413 PUBLIC        UA_ORTHO_Albuquerque01

41 rows selected.
```

Presenting this information in a pleasing graphical form is a different problem, one that can certainly be solved using ArcMap layout and design functions. It is not obvious whether or not good graphic presentation of coverage information can be made standard enough (let alone easy enough) to be repeated at frequent intervals.

5 Further Investigation

The procedure outlined here for finding footprint-layer associations works, but is clearly not optimal. The necessity of creating an intermediate static dataset of footprints is cumbersome, and makes it impossible to ever solve the problem with absolutely current data. It would obviously be preferable to connect a visual GIS directly to the Oracle EXTENTS table. Until we can do this, we may have to be content with refreshing the footprints.shp file frequently.

Attachment A. Complete List of National-Coverage Layers

Below is a list of all public national-coverage layers registered in the Catalog as of May 24, 2005. "Public national-coverage" means that both the service and the layer have status=PUBLIC, and the layer is associated with a national footprint. The list was created with the following query. The footprint IDs of national footprints are hard-coded; if more national footprints are added to the Catalog, this query will have to be changed to match.

```
select elements.id,
       themes.name,
       title
from   elements,
       element_classifications,
       classifications,
       themes,
       services
where  footprintid in (1403,100)
   and elements.status='PUBLIC'
   and element_classifications.elementid=elements.id
   and classifications.id=element_classifications.classificationid
   and classifications.themeid=themes.id
   and elements.serviceid=services.id
   and services.status='PUBLIC'
order by themes.name
```

ID	THEME	LAYER
3426	SOLDGR	Aquifers (DOD)
2440	SOLDGR	Facilities (DOD)
2433	SOLDGR	DOQ Production Index (DOD)
4752	SOLDGR	National Geochemical Survey
2434	SOLDGR	Department Of Defense Lands (DOD)
6690	SOLDGR	PHYSIOGRAPHY (Conterminous United States)
6688	SOLDGR	TOXICS RELEASE INVENTORY LOCATIONS
10273	SOLDGR	Geology
10271	SOLDGR	Glacial Limit
5496	SOLDGR	Active Fires
6219	SOLDGR	Realtime Gaging Stations
10244	SOLDGR	Seizmic Hazards
4858	SOLDGR	US RADAR
10268	SOLDGR	Caldera
10269	SOLDGR	Fault Lines
10270	SOLDGR	Impact Structure
10272	SOLDGR	Geology_txt
6681	SOLDGR	U.S. CLIMATE DIVISIONS
6689	SOLDGR	HYDROLOGIC UNITS
6692	SOLDGR	STATSGO SOILS (Conterminous United States)
4259	SOLDGR	NASQAN sampling sites
4257	SOLDGR	NASQAN watersheds
1057	BOUNDARIES	State and Province Boundaries (Backup)
796	BOUNDARIES	USGS County
3578	BOUNDARIES	GNIS/Atlas State Boundaries
3379	BOUNDARIES	GNIS/Atlas County Boundaries
9346	BOUNDARIES	SDE.LRDAVIS.STATES48
4952	BOUNDARIES	County Boundaries
3405	BOUNDARIES	FS Administrative Boundaries (Polygon Fill)
3406	BOUNDARIES	FS Administrative Boundaries (Outline)
4082	BOUNDARIES	FS Wilderness Boundaries (Polygon Fill)
4084	BOUNDARIES	FS Wilderness Boundaries (Outline)
4085	BOUNDARIES	FS Ranger District Boundaries
3380	BOUNDARIES	GNIS/Atlas State Boundaries
3249	BOUNDARIES	NPS National Park Boundaries
825	BOUNDARIES	Administrative Boundaries (USGS)

ID	THEME	LAYER
826	BOUNDARIES	County Boundaries (USGS)
838	BOUNDARIES	State and Province Boundaries (USGS)
6915	BOUNDARIES	State and Province Boundaries (USGS)
4640	ELEVATION	SRTM Relief (SOLDGR)
1691	ELEVATION	GTOPO60 Grayscale Shaded Relief
1692	ELEVATION	GTOPO60 Color Shaded Relief
9956	ELEVATION	NDEP Planned Projects
9957	ELEVATION	NDEP In Work Projects
9958	ELEVATION	NDEP Completed Projects
9924	ELEVATION	Depth Contours and Areas (NOAA)
9002	ELEVATION	NOAA Electronic Navigational Charts GIS Data Index
9005	ELEVATION	NOAA Electronic Navigational Charts GIS Data Depth
9188	ELEVATION	Soundings
9507	ELEVATION	GTOPO60 Grayscale Shaded Relief
9481	ELEVATION	GTOPO60 Color Shaded Relief
4873	ELEVATION	Color Shaded Relief
9294	ELEVATION	Topobathy Index
8206	ELEVATION	1/9 ArcSecond NED Index
8007	ELEVATION	1/3 ArcSecond NED, CONUS
8204	ELEVATION	1/3 ArcSecond NED Index
6836	ELEVATION	NED_Index
6866	ELEVATION	US NED Shaded Relief
841	GEOGRAPHIC NAMES	Cities (USGS)
4964	GEOGRAPHIC NAMES	Capitals and Other Cities
3377	GEOGRAPHIC NAMES	Cultural Features
3378	GEOGRAPHIC NAMES	Historical Features
9729	GEOGRAPHIC NAMES	Administrative Features
3376	GEOGRAPHIC NAMES	Landform Features
3374	GEOGRAPHIC NAMES	Communities
3372	GEOGRAPHIC NAMES	Cultural Features
3369	GEOGRAPHIC NAMES	Structural Features
3370	GEOGRAPHIC NAMES	Transportation Features
3371	GEOGRAPHIC NAMES	Landform Features
3373	GEOGRAPHIC NAMES	Administrative Features
3375	GEOGRAPHIC NAMES	Communities
7810	GEOLOGY	Global Seismic Network
7811	GEOLOGY	Global Seismic Networks
3498	HYDROGRAPHY	Wetland Polygons (USFWS)
4046	HYDROGRAPHY	NHD Medium Res Point
4044	HYDROGRAPHY	NHD High Res Line
4042	HYDROGRAPHY	NHD Local Res Line
4962	HYDROGRAPHY	Rivers and Streams
4966	HYDROGRAPHY	Realtime Gaging Stations
8900	HYDROGRAPHY	National Atlas Waterbody Labels
8901	HYDROGRAPHY	National Atlas Stream Labels
8902	HYDROGRAPHY	National Atlas Waterbodies 7.5M
8903	HYDROGRAPHY	National Atlas Waterbodies
8904	HYDROGRAPHY	National Atlas Streams 7.5M
8905	HYDROGRAPHY	National Atlas Streams
4033	HYDROGRAPHY	NHD Local Res Waterbody
4034	HYDROGRAPHY	NHD Medium Res Waterbody
4035	HYDROGRAPHY	NHD High Res Waterbody
4036	HYDROGRAPHY	NHD Local Res Area
4037	HYDROGRAPHY	NHD Medium Res Area
4038	HYDROGRAPHY	NHD High Res Area
4039	HYDROGRAPHY	NHD Local Res Flowline
4040	HYDROGRAPHY	NHD Medium Res Flowline
4041	HYDROGRAPHY	NHD High Res Flowline
4043	HYDROGRAPHY	NHD Medium Res Line
4045	HYDROGRAPHY	NHD Local Res Point
4047	HYDROGRAPHY	NHD High Res Point
3497	HYDROGRAPHY	Available Wetland Data (USFWS)
7074	HYDROGRAPHY	NHD SubBasin Status
7073	HYDROGRAPHY	NHD SubBasin Status
6898	LAND USE/LAND COVER	USGS NLCD
6896	LAND USE/LAND COVER	NLCD 1992 Index
6272	LAND USE/LAND COVER	America View MODIS_NDVI_Index
6273	LAND USE/LAND COVER	America View MODIS NDVI 7th Day
6274	LAND USE/LAND COVER	America View MODIS NDVI 6th Day

ID	THEME	LAYER
6275	LAND USE/LAND COVER	America View MODIS NDVI 5th Day
6276	LAND USE/LAND COVER	America View MODIS NDVI 4th Day
6277	LAND USE/LAND COVER	America View MODIS NDVI 3rd Day
6278	LAND USE/LAND COVER	America View MODIS NDVI 2nd Day
6279	LAND USE/LAND COVER	America View MODIS NDVI 1st Day
7498	LAND USE/LAND COVER	FCC Jul 11 2004
7499	LAND USE/LAND COVER	FCC Jul 27 2004
7500	LAND USE/LAND COVER	FCC Aug 12 2004
7601	LAND USE/LAND COVER	EVI Jun 25 2004
7602	LAND USE/LAND COVER	EVI Jul 11 2004
7603	LAND USE/LAND COVER	EVI Jul 27 2004
7604	LAND USE/LAND COVER	EVI Aug 12 2004
7705	LAND USE/LAND COVER	NDVI Jun 25 2004
7706	LAND USE/LAND COVER	NDVI Jul 11 2004
7497	LAND USE/LAND COVER	FCC Jun 25 2004
7707	LAND USE/LAND COVER	NDVI Jul 27 2004
7708	LAND USE/LAND COVER	NDVI Aug 12 2004
8855	LAND USE/LAND COVER	NLCD 2001 ZONES
8856	LAND USE/LAND COVER	NLCD 2001 Land Cover
8858	LAND USE/LAND COVER	NLCD 2001 Canopy
8859	LAND USE/LAND COVER	NLCD 2001 Impervious Surface
1924	LAND USE/LAND COVER	USGS Current Greenness (NDVI)
1652	ORTHOIMAGERY	DOQ (TerraServer USA)
8384	ORTHOIMAGERY	Hi-Res View Only Ortho Index
9488	ORTHOIMAGERY	Hi-Res Ortho Index
5507	ORTHOIMAGERY	LANDSAT7 Index
197	ORTHOIMAGERY	LANDSAT7
9521	ORTHOIMAGERY	NDOP Project Tracking
198	ORTHOIMAGERY	LANDSAT7 Index
2839	OTHER	0-24k Coverage
2267	OTHER	Catalog Partner Names
1803	OTHER	Township Labels (BLM)
1800	OTHER	Quarter-Quarter Labels (BLM)
1796	OTHER	Township Boundaries (overview) (BLM)
1797	OTHER	Quarter-Quarter Boundaries (BLM)
1798	OTHER	Section Boundaries (BLM)
1799	OTHER	Township Boundaries (BLM)
1802	OTHER	Section Labels (BLM)
7747	SPECIAL	Q3 Flood Hazards
10263	SPECIAL	Weather Warnings
10278	SPECIAL	US RADAR
4318	SPECIAL	Active Fires
7746	SPECIAL	Flood Data Availability
8254	STRUCTURES	GSA Buildings
9139	STRUCTURES	Installation Buoy
9140	STRUCTURES	Special Purpose Buoy
9141	STRUCTURES	Safe Water Buoy
9142	STRUCTURES	Lateral Buoy
9152	STRUCTURES	Cardinal Buoy
9153	STRUCTURES	Isolated Danger Buoy
9163	STRUCTURES	Harbor Facility
9347	STRUCTURES	NOAA Electronic Navigational Charts GIS Data Index
9007	STRUCTURES	Harbor Facility Area
1653	TOPOGRAPHIC MAPS	DRG (TerraServer USA)
6677	TOPOGRAPHIC MAPS	7.5 Minute Index
6695	TOPOGRAPHIC MAPS	100,000 Index
6738	TOPOGRAPHIC MAPS	250,000 Index
837	TRANSPORTATION	US Roads (USGS)
1695	TRANSPORTATION	US Road Labels (BTS)
9348	TRANSPORTATION	NOAA Electronic Navigational Charts GIS Data Index
9108	TRANSPORTATION	Traffic Separation Line
9090	TRANSPORTATION	Ferry Route
9077	TRANSPORTATION	Traffic Separation Scheme Boundary
9046	TRANSPORTATION	TrafficSeparation Zone
7762	TRANSPORTATION	Ports
7763	TRANSPORTATION	Airport Runway
7764	TRANSPORTATION	NTAD Railroads-100K
7765	TRANSPORTATION	NTAD Railroads-1:2000000
7766	TRANSPORTATION	US Interstates (USGS)

```
     ID THEME                     LAYER
------- ------------------------- --------------------------------------------------
   7767 TRANSPORTATION            US Interstates (National Atlas) (Back-up)
   7771 TRANSPORTATION            US Major Roads (National Atlas) (Back-up)
  10280 TRANSPORTATION            US Major Roads (National Atlas) (Back-up)
  10359 TRANSPORTATION            US Interstate Labels (USGS)
   7758 TRANSPORTATION            Aircraft Landing Site with Control Tower
   7759 TRANSPORTATION            Aircraft Landing Site-All
   7760 TRANSPORTATION            Heliport
   7761 TRANSPORTATION            Seaplane Base
  10360 TRANSPORTATION            US Highway Labels (USGS)
  10361 TRANSPORTATION            State Highway Labels (USGS)
  10362 TRANSPORTATION            County Road Labels (USGS)
   8914 TRANSPORTATION            US Interstates (USGS) (Back-up)
   9518 TRANSPORTATION            US Interstate Labels (USGS)
   9014 TRANSPORTATION            Two-Way Route Part
   9022 TRANSPORTATION            Recommended Track Area
   9036 TRANSPORTATION            Ferry Route Area
   4753 TRANSPORTATION            NORM-ED Distance to nearest road
   4961 TRANSPORTATION            US Interstates (National Atlas)
   8863 TRANSPORTATION            US Major Roads (National Atlas)
  10279 TRANSPORTATION            US Major Roads (National Atlas)
  10282 TRANSPORTATION            US Major Roads (National Atlas)
   9048 TRANSPORTATION            Traffic Separation Scheme Lane Part
   9085 TRANSPORTATION            Navigation Line
   9093 TRANSPORTATION            Recommended Track
   9113 TRANSPORTATION            Recommended Route Centerline
   1694 TRANSPORTATION            US Roads (BTS)
    836 TRANSPORTATION            US Roads (USGS)
    832 TRANSPORTATION            US Major Roads (USGS)

202 rows selected.
```